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Inclusion of People with Disabilities in Disaster Risk Management after the COVID-19 Pandemic: an exploratory study in the Greek context

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Emmanouil Pikoulis¹, Ioannis Vardakastanis², Evika Karamagioli³, Evangelia Kallimani⁴ and Eleni-Panagiota Stoupa⁵

ABSTRACT

This research paper responds to the urgent need for comprehensive national data on the impact of natural disasters and the concurrent COVID-19 pandemic on people with disabilities (PWDs) in Greece. Conducted with 1,006 participants, including PWDs and caregivers, the study employs an online survey to glean insights into their experiences during the COVID-19 pandemic and perceptions of inclusion in disaster preparedness and management. Filling a significant gap in national data, this marks the first survey undertaken in the aftermath of the pandemic and recent natural disasters in Greece, focusing on disability-inclusive approaches. The study's results reveal a moderate level of implementation of disaster preparedness measures, but a strong desire for training education and inclusive strategies, indicating a significant opportunity to enhance community readiness. Feedback and recommendations from a focus group of 20 participants, including Disabled People's Organizations (DPOs) professionals and PWDs, further enrich the study. The findings aspire to contribute information to update Greek national policies, emphasizing inclusivity as a fundamental aspect of emergency preparedness, particularly amid a polycrisis. The paper addresses the COVID-19 as a health disaster.

Keywords: Disasters, COVID-19 pandemic, People with Disabilities (PWDs), Disaster Risk Management (DRM), Disability inclusive, Greek national policies

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1 Introduction

Disasters, regardless of whether they arise from natural, biological, technological, or societal causes, imperil lives, properties, and yield substantial economic losses. The COVID-19 pandemic, recognized as a disaster, necessitates evolving response practices (Alkhayat and Pankhania, 2020). Effective disaster risk management encompasses exposure minimization, vulnerability reduction, preparedness, real-time response, and recovery efforts (Nandi, 2022). The occurrence of disasters alongside the COVID-19 pandemic has resulted in complex emergencies, necessitating a systematic review of health sector responses to the coincidence of disasters and COVID-19 (Sohrabizadeh et al., 2021). Incorporating natural hazard inputs into COVID-19 epidemiological models could enhance the evidence base for informing contemporary policy across diverse multi-hazard scenarios, defining, and addressing gaps in disaster preparedness strategies, and implementing a future-planning systems approach into contemporary COVID-19 mitigation strategies (Quigley et al., 2020). Furthermore, achieving balance is essential for effectively handling simultaneous disasters, and innovative comprehensive strategies are required to generate effective responses during the COVID-19 pandemic (Ashraf, 2021). The pandemic has also necessitated the integration of new measures into conventional single-hazard disaster response approaches, including basic skills training on handling COVID-19 for disaster responders, additional stockpiles of essential supplies, and updating of standard operation procedures and guidelines for disaster response to adapt to concurrent crisis situations (Potutan and Arakida, 2021).

Disasters affect everybody, but vulnerable groups are affected the most. Because they are frequently invisible, marginalized, and poorly understood, people with disabilities are more susceptible to disaster impact. Within the framework of this "polycrisis" scenario, people with disabilities, who make up around 15 percent of the world's population (WHO, 2011), consistently experience greater negative effects from disasters. They face numerous and intricate obstacles when it comes to receiving prompt and easily understandable warning signs, while they also encounter difficulties during the process of evacuation, such as inaccessible routes and shelters (Grech, 2020, Twigg, Kett, and Lovell, 2018). Challenges arise not only in disaster response but also in mainstream disaster risk reduction (DRR), where they are frequently excluded or marginalized, which leaves them at a heightened risk and vulnerability. This vulnerability is exacerbated by the fact that they experience higher levels

of poverty and inequality initially, resulting in their weak positioning when it comes to stresses and shocks (Grech, 2023), as in the case of the COVID-19 pandemic. During the pandemic, people with disabilities encountered a plethora of barriers to accessing healthcare, information and support services that emphasized existing inequalities and hindered their ability to fully participate in society. Recent examples in Europe and Central Asia, including the COVID-19 pandemic and the 2021 flooding and wildfires, underscore the disproportionate impact on individuals with disabilities, evidencing discrimination and higher mortality rates among this group (European Disability Forum, 2021).

In the context of ongoing disasters, the traditional risk-management approach falls short, and the need for a resilient, disability-inclusive model of disaster risk management appears more imperative than ever. Governments and organizations, including those involved in community development, require accurate data to track individuals with disabilities before, during, and after disasters to integrate disability considerations into mainstream efforts. The current paper constitutes an attempt of updating the relevant data and provide insight in the Greek framework.

2 Theoretical Background

2.1 Disability mainstreaming and Disasters.

Disability mainstreaming consists of a multifaceted process with the aim of involving individuals with disabilities into various aspects of society. It encompasses the identification and removal of barriers to the inclusion of persons with disabilities in mainstream society (Naami, 2014). In the context of education, mainstreaming has been shown to have positive effects on academic outcomes for students with and without disabilities (Crea et al., 2022). However, it is essential to consider the specific needs of individuals with disabilities when implementing mainstream practices, particularly in the field of mental health (Man and Kangas, 2019). This is supported by the idea that "reasonable adjustments" need to be made throughout the system, from service commissioning to outcomes, to ensure that mainstream approaches to mental health can be applied to all people with disabilities (Leyin, 2011). Moreover, the concept of "mainstreaming" involves moving people with disabilities out of specialized spaces designed specifically for them and into spaces open to people of all abilities (Wiesel et al., 2022). This shift is evident in the contemporary education system, where there has been a move from segregated special schools to mainstream schools for children with

disabilities (Holt, 2007). In the healthcare sector, there is a need for consultation with mainstream services to address the experiences of people with intellectual disabilities in accessing physical health services (Ali et al., 2013). Additionally, the use of dyads to examine the experiences of people with intellectual disabilities in mainstream physical health services highlights the importance of inclusive practices in healthcare (Ali et al., 2013).

Research on disability mainstreaming (DM) is scarce compared to that on gender mainstreaming (GM). Building on GM's experience, Meier, Celis, and Huysentruyt (2016) compared the requirements for the successful implementation of DM and GM in the areas of employment and education and found no discernible differences in the factors influencing DM, with a focus on the first Flemish policy cycle of DM (2010–2014). Disability mainstreaming in disaster risk reduction is a critical area that requires attention to ensure the safety and inclusion of people with disabilities during disasters. Research has highlighted the incongruence between disability and disaster risk reduction, emphasizing the need to integrate disability considerations into mainstream disaster risk reduction efforts (Lunga et al., 2019). Disaster risk reduction and emergency preparedness often fail to adequately address the needs of individuals with disabilities, leading to their increased vulnerability during disasters (Peek and Stough, 2010). Disability is frequently treated as a separate issue from mainstream disaster risk reduction, resulting in exclusion from preparedness policies and relief processes (Lunga et al., 2019). Research emphasizes the necessity of promoting disaster preparedness among children with disabilities and their families at various levels, including individual, family, community, and global scales, and calls for inclusive disaster communication informed by individuals with disabilities and their families (Mann et al., 2021). Disaster planning for individuals with intellectual disabilities should consider their disproportionate risk in disaster situations, their exclusion from relief processes, the need for specialized disability-related supports, assistive technology, and rehabilitative services, as well as the importance of inclusive recovery and rebuilding efforts (Stough, 2015). Efforts to achieve effective disability-inclusive disaster response involve investing in the organizational and financial capacity of Disabled People's Organizations (DPOs), adapting donor funding policies, and ensuring engagement of DPOs with mainstream humanitarian local actors throughout all phases of disaster (Pertwi and Margaretha, 2021). Studies have shown that mental health illness and poor health status are associated with lower levels of disaster

preparedness, while disability status itself is not significantly linked to disaster preparedness (Hamann et al., 2016). Inclusion of persons with disabilities in disaster risk reduction management practices is crucial for enhancing their resilience, accessibility to information, and improving preparedness efforts, while reducing stigmatization and discrimination (Elisala et al., 2020). Disasters pose significant challenges for individuals with disabilities, including the risk of crush injuries, destruction of dialysis facilities, and disparities in disaster preparedness based on health, functional, and disability conditions. The National Disability Insurance Scheme (NDIS) aims to allocate individual funding packages to people with disabilities and facilitate their access to mainstream services (Fisher et al., 2022). Embedding dignity in disaster relief and recovery requires acknowledging the right of people with disabilities to be safe from harm and suffering (Chapman et al., 2022).

3 The international state of the art: challenges and opportunities for an inclusive disaster preparedness and response model

Research consistently shows insufficient inclusion of individuals with disabilities in Disaster Risk Reduction (DRR) policies (Bennett, 2020). Disability-inclusive DRR projects are growing, aligning with the Sendai Framework for Disaster Risk Reduction 2015–2030 (Kusumowardoyo and Tamtomo, 2022). The UN Convention on the Rights of Persons with Disabilities (CRPD) and the Sendai Framework stress equitable protection in disaster planning, relief, and recovery, emphasizing disabled individuals' needs (Chapman et al., 2022). The international framework for disability-inclusive disaster risk management (DRM) draws from major policies, including the 2030 Agenda for Sustainable Development, CRPD, World Humanitarian Summit, Paris Climate Change Agreement, Habitat III, and the New Urban Agenda. Popovski (2023) underscores the CRPD's significance as the first comprehensive international human rights treaty addressing the rights of individuals with disabilities across various contexts.

Adopted in 2006 and ratified by 185 UN member states, the CRPD mandates nations to protect individuals with disabilities during conflicts, emergencies, and natural disasters (UNCRPD, 2006; Schulze, 2009). The European Disability Forum's November 2021 findings emphasize persons with disabilities' consistent vulnerability to natural hazards and climate-induced disasters (EDF, November 2021). Article 11 of the CRPD is pivotal, explicitly addressing obligations in risk situations, including humanitarian emergencies and natural disasters (UNDRR, 2020), emerging from negotiations influenced by the 2004 tsunami, stressing explicit

protection for individuals with disabilities during various emergencies (Fleury and Ujah, 2020).

Adopted in 2015, the Sendai Framework emphasizes including people with disabilities in DRM policy design and implementation (Stough, 2015). The European Forum for Disaster Risk Reduction's endorsement underscores empowering disabled individuals and collecting disability-disaggregated data (EDF, November 2021). World Bank frameworks, including the Environmental and Social Framework and Rapid Response to Emergencies, contribute to disability-inclusive disaster management (Guernsey and Scherrer, 2017). The UN Disability Strategy in 2019, the International Committee of the Red Cross Vision 2030 on Disability in 2020, and guidelines for enhancing disability inclusion in humanitarian response plans in 2019 provide a roadmap for practical implementation (BündnisEntwicklungHilft / IFHV, 2023). Challenges persist in integrating disability into DRM, including social exclusion, gaps in emergency plans, inadequate first responder training, and recovery initiatives overlooking accessibility and financial inclusion (Guernsey and Scherrer, 2017). The European Disability Forum's November 2021 review reveals limited progress in implementing the Sendai Framework with a disability inclusion perspective at the national level in Europe and Central Asia, emphasizing the urgent need for improved disaster and climate-related risk reduction for people with disabilities (EDF, November 2021).

3.1 COVID-19 and Disability

People with disabilities faced exacerbated challenges during the COVID-19 pandemic, experiencing more severe consequences than non-disabled individuals (Cortis and Van Toorn, 2020). The disruption of essential support services, such as personal assistants and specialized equipment, due to lockdown measures and overwhelmed healthcare systems posed a significant challenge for disabled individuals.

A UN policy brief highlighted various challenges faced by people with disabilities during the pandemic, including accessibility issues hindering basic protection measures, difficulties in maintaining physical distancing due to reliance on physical contact for assistance, and inaccessible public health information (UN, 2020). Those in overcrowded settings faced heightened risks, and discriminatory healthcare rationing decisions, influenced by factors like age and assumptions about the quality of life based on disability, led to the denial of life-saving procedures (UN, 2020). The COVID-19 Disability Rights Monitor (DRM) Coordinating Group emphasized key issues, including fatal consequences in residential institutions, breakdowns in

essential services and police enforcement, human rights violations, and denial of basic and emergency healthcare based on disability (Brennan et al., 2020).

Certain policy health measures, such as the UK's NICE guidelines in March 2021, proved discriminatory against people with disabilities, as they recommended using a clinical frailty scale that was later retracted due to concerns about bias and labeling individuals with disabilities as "expendable" (Courtenay and Perrera, 2020). The incident highlighted a broader issue of adopting a "one-size-fits-all" approach in healthcare decisions during the pandemic, inadvertently discriminating against individuals with disabilities (Goggin and Ellis, 2020).

Despite these challenges, the COVID-19 pandemic has brought positive changes. Organizations of People with Disability (OPDs), previously hindered in participation, now contribute through video calls. OPDs lead research on the pandemic's impacts, filling gaps left by traditional institutions. These examples challenge the notion of viewing people with disabilities merely as 'vulnerable' in crises (Erlha, 2021). Initiatives to mitigate the impact on individuals with disabilities in Europe, led by Disability Organizations (DPOs), have contributed to accessible information, advocacy, policy development, and service provision. However, despite these efforts, disability-inclusive responses from policymakers are not universally implemented (European Human Rights Report, 2021).

3.2 Disaster preparedness and Disability: best practices at international level

During disasters, individuals with disabilities face challenges accessing assistance and protection (Twig, Kett, and Lovell, 2018). These challenges stem from prevailing perspectives on disability—the medical and social models. The medical model focuses on intrinsic physical conditions, while the social model considers disability a social construct influenced by societal factors (Burchardt, 2004; Ton et al., 2019). This social model significantly informs understanding and addressing the needs of people with disabilities during disasters. A UK study by Priestly and Hemingway in 2007, guided by the social model, examined recovery responses to the 2004 Great Asian Tsunami and 2005 Hurricane Katrina. The study highlighted a critical point: future preparedness planning should extend beyond individual readiness and emphasize structural changes. In both disasters, despite occurring in vastly different social, political, and economic settings, the response measures failed to adequately address the needs of people with disabilities. One of the reasons for the failure of these response measures was the framing of people with disabilities as vulnerable and lacking capacity, which

excluded them from preparedness efforts. This exclusion not only overlooked the valuable lived experiences and knowledge of people with disabilities, gained from previous disasters, but also hindered effective disaster preparedness and response efforts. It underscored the importance of adopting a more inclusive and rights-based approach that recognizes the agency and expertise of people with disabilities in disaster management and emphasizes structural changes to promote their full participation and protection. Other studies have yielded similar results, contributing to increased awareness and efforts to enhance disability-related practices in various crises and disasters in different settings, such as earthquakes in Japan in 1994 and 2011, the Indian Ocean tsunami in 2004, and Hurricane Katrina in 2005. (Alexander et al., 2012; Hemingway and Priestley, 2006; Tatsuki, 2012; Kett et al., 2005).

While response measures have failed people with disabilities in the past, disability-inclusive frameworks for disaster management exist and are progressively implemented across Nations who have or are willing to adopt them. In the scope of the survey, some recent best practices for disability-inclusive disaster management have identified, in the European Context: The Republic of Cyprus Civil Defense Force has taken the initiative to design a strategy known as "TRIPOS (Republic of Cyprus, 2016) (Management of Persons with Disabilities or Other Issues in Emergency Situations). This plan provides the strategy for meeting the requirements of people with disabilities during emergencies, including their preparedness, equipment, and training and entails the coordination of numerous agencies and organizations, ranging from local and regional authorities to non- governmental and volunteer organizations. Different European countries have implemented varied approaches to dealing with crises that affect people with disabilities. Countries such as Germany and Finland, for example, have chosen to change their constitutions to include provisions for dealing with crises involving people with disabilities. Discriminatory acts against people with impairments during times of crisis are regarded as criminal offenses in France and Finland, with legal penalties. Meanwhile, the United Kingdom and Ireland have enacted civil laws that guarantee individuals with disabilities the right to seek legal redress, particularly in cases of job discrimination and access to goods and services, particularly when emergency plans are absent. Sweden has designated an Ombudsman to investigate and take appropriate action during situations affecting people with disabilities. Furthermore, in January 2004, Italy enacted legislation requiring both public and private websites delivering public services to adopt procedures to manage the emergency

needs of people with impairments. These diverse approaches across Europe strive to improve the protection and support provided to people with disabilities during times of crisis.

4 The case of Greece

4.1 Disability Classification and Demographics in Greece

The population group of individuals with disabilities is characterized by significant heterogeneity. According to Article 60 of Law 4488/2017 (Government Gazette 137 A'/13.09.2017) in Greece, individuals with disabilities are defined as those with long-term physical, mental, intellectual, or sensory impairments. This consists of an umbrella term that encompasses individuals from various disability/chronic illness categories. A grouping of the main disability categories is as follows: (a) individuals with mobility impairments (e.g., quadriplegia, paraplegia, etc.), (b) individuals with blindness/visual impairment, (c) individuals with deafness/hearing impairment, (d) individuals with mental disabilities (e.g., individuals with bipolar disorder, schizophrenia), (e) individuals with intellectual/cognitive/developmental disabilities (e.g., individuals with autism), (f) individuals with other disabilities (e.g., individuals with Down syndrome), (g) individuals with chronic illnesses (e.g., individuals with thalassemia, kidney disease, diabetes), and (h) individuals with severe and multiple disabilities. According to the Disability Issues Observatory of the Hellenic Statistical Authority, individuals with disabilities make up 24.7% of the Greek population aged 16 and over, totaling 2,231,197 individuals out of a total population of 9,016,247. The invisibility of individuals with disabilities and chronic illnesses is not related to their population size but rather to the fact that some disabilities and chronic illnesses are not visible, as well as the barriers (architectural, ergonomic, behavioral, etc.) that restrict their social inclusion. The percentage of the population with a direct interest in disability-inclusive strategies rises significantly when we include people who are directly related to people with disabilities and chronic illnesses (parents, guardians, and the larger family context).

4.2 Greece's Alignment to Disability Inclusion Policies

In 2012, Greece ratified the Convention on the Rights of Persons with Disabilities, along with its optional protocol, through Law No. 4074/2012. Subsequently, Law No. 4488/2017 established the framework for its implementation (Part D, Articles 59-74). Ratifying the Convention obliges the country to apply it at the national, regional, and local levels and not

enact legislation that contradicts its purpose, perpetuating discrimination against persons with disabilities. The ratification of the Convention not only imposes these commitments on Greece for protecting the rights of persons with disabilities in all aspects of life but also requires the country to undergo scrutiny by the UN Committee regarding its implementation. Greece was first reviewed in September 2019, following the submission of an official report. The Committee approved Final Observations, recommending that Greece develop a comprehensive strategy and protocols for general crisis situations in line with the Sendai Framework for Disaster Risk Reduction 2015-2030. It also advised ensuring accessible reception facilities and providing necessary healthcare services, in close consultation and active involvement of persons with disabilities through their representative organizations (National Confederation of Disabled People, 2019).

In the Greek context, there exist some programs such as "DARDANOS 2," "IOLAOS 2", "EGKELADOS", and "VOREAS" that provide action plans with guidelines for the care and protection of individuals with disabilities during times of risk and need. Since the mid-990s, there has been a consistent demand from organizations advocating for persons with disabilities for the development and implementation of a national strategy for public policies aimed at protecting and promoting the rights of persons with disabilities and their families. In 2020, responding to these demands, the government initiated and finalized the National Action Plan. Goal 17 is included in the National Plan, titled "Protection and Safety in Crisis and Emergency Situations," with actions such as updating Emergency Response Plans to incorporate provisions for persons with disabilities, improving access to emergency services and early warning systems for persons with disabilities, and ensuring the rehabilitation and temporary shelter of persons with disabilities affected by natural disasters (National Confederation of People with Disabilities, 2023). The National Disability Action Plan (2020) represents a new initiative, being the first and only tool to envision the integration of disability inclusion within civil protection during emergency scenarios. Despite the provisions in national law (Law No. 4662/2020) assigning specific responsibilities for disability policy at the national, regional, and municipal levels, the lack of specific references to the protection of persons with disabilities, along with the absence of clarifying circulars, ministerial decisions, and guiding directives, exacerbates the issue of safeguarding the rights of this population and contravenes the Convention and the country's Constitution.

4.3 Disability inclusion in the COVID-19 Pandemic

In the Greek context, during the COVID-19 pandemic, challenges such as the absence of official data and limited digital capabilities of public services came to the forefront. However, the pandemic acted as a catalyst for digital transformation in the country. Article 31 of the Convention emphasizes the importance of data collection on disability for effective policies, particularly in public health surveillance systems. However, pre-existing gaps in disability surveillance systems, that resurfaced during the COVID-19 pandemic, limited data availability and exposed persons with disabilities to harmful conditions (Reed, Meeks, and Swenor, 2020). The reliance on closed care facilities worldwide for disability data, focusing on chronic conditions, further hindered a comprehensive understanding of the pandemic's effects on marginalized populations, particularly individuals with disabilities (Reed, Meeks, and Swenor, 2020).

In Greece, emergency measures during the pandemic aimed at improving primary healthcare access indirectly benefited disabled individuals. Initiatives such as Mobile Health Teams for COVID-19 testing and home care, specialized health centers, and digital prescriptions with home delivery were implemented, contributing to healthcare accessibility (Greek Ombudsman, 2020). The expansion of municipal Home Help programs was also recognized for catering to various vulnerable community groups (Greek Ombudsman, 2020).

Despite efforts, persons with disabilities faced challenges and discriminatory treatment during the pandemic, as reported by Mladenov and Brennan (2021). Legislative regulations aimed at protecting individuals with disabilities were implemented, but cases of neglect and discrimination persisted, posing threats to their lives. Challenges such as the absence of official data and limited digital capabilities of public services emerged during the COVID-19 pandemic. However, the pandemic also acted as a catalyst for digital transformation in the country.

The absence of official data on persons with disabilities and their underrepresentation at the local level became prominent issues during the pandemic. Challenges in implementing disability registration laws were evident due to limited digital capabilities. However, the pandemic prompted a digital transformation in Greece, with a national survey revealing that most persons with disabilities utilized digital services established during the pandemic, showing high satisfaction rates. Those not using these services cited perceived difficulties as

the main reason (Kallimani, 2020).

4.4 Challenges and Imperatives for Inclusive Disaster Preparedness in Greece

Examining the aspects from an institutional perspective reveals a comprehensive framework for safeguarding the rights of persons with disabilities, chronic illnesses, and their families, which naturally requires improvement. However, when viewed from an operational standpoint, gaps, deficiencies, and discrimination against persons with disabilities are observed, with a lack of mechanisms for disaster prevention and mitigation. While the specific needs vary among disability and chronic illness categories, it is widely acknowledged that the removal of barriers, such as physical, architectural, technological, informational, and communication barriers, as well as attitudinal, political, and procedural obstacles, contributes to an effective and inclusive response at all stages of the disaster cycle (Kallimani, 2020).

The ongoing refugee crisis, extensive wildfires in areas like Euboea, Rhodes, and Evros, recent flooding in Thessaly, and other crisis events place persons with disabilities in precarious life situations due to the absence of a disaster risk reduction mechanism. Reflecting on the recent natural disasters that have struck the country, once again, the lack of measures to support persons with disabilities, chronic illnesses, and their families is evident. In the wake of such disasters, the disability rights movement emphasized the immediate and free restoration of technical, technological, medical, and healthcare aids/materials for persons with disabilities/chronic illnesses, as well as the prompt replacement of private transportation means (vehicles). Immediate restoration of material damages incurred by public education facilities attended by persons with disabilities and public institutions providing services or programs for persons with disabilities is a necessary condition to prevent social exclusion during such crises (NCPD, 2023).

Considering that from 2000 to 2019, there were 7,348 major catastrophic events worldwide, compared to 4,212 between 1980 and 1999, and over the last two decades, the number of major floods more than doubled from 1,389 to 3,254, and the frequency of storms increased from 1,457 to 2,034, the development of an inclusive protection policy warrants immediate national attention (UNDRR, 2022).

5 Methodology

This research was undertaken in response to a crucial demand for data that includes insights into the difficulties experienced by individuals with disabilities in the aftermath of the COVID-19 pandemic and during a period when unprecedented natural disasters are impacting the country. A mixed method (scoping review, focus groups, online-survey) was employed to gather a thorough understanding of the present circumstances and to collect real-world data from affected communities.

A scoping review was conducted to identify the existing knowledge base concerning the intersection of COVID-19, natural disasters, and individuals with disabilities, with focus on their reception to implemented state measures regarding the pandemic of COVID-19 and the provision for their involvement in disasters/crisis. Based on the documents extracted in the scoping review, a thematic analysis was conducted, involving a systematic review and categorization of the content to identify key themes, patterns, and trends pertaining to the research questions.

Following the completion of the scoping review a discussion guide was designed to be used in two focus groups organized on June 13, 2023, and June 25, 2023, in the Library of Health Science, of National and Kapodistrian University of Athens. The purpose of these focus groups was to delve into the themes emerging from the scoping review and discuss its key findings. The discussion guide included semi-structured open-ended questions based on the key themes, patterns and trend formulating from the scoping review. For the implementation of these focus groups non-probability sampling method was chosen, and more specifically a purposive sample. The recruitment of participants took place during May 2023, through email invitations that were sent to representatives from the National Confederation of Persons with Disabilities and Chronic Diseases (NCPD), members of the disability movement, the National Organization for Public Health, health associations, government officials, as well as individuals with disabilities and chronic diseases. Overall, 63 invitations were sent through email, from which 20 individuals participated in these focus groups (8 in the first focus group and 12 at the second). Throughout these focus group sessions, participants had the opportunity to review the findings of the scoping review, analyze these findings in the context of the current situation in Greece, and offer proposals, suggestions, and recommendations, particularly regarding the initial draft of the questionnaire. These workshops aimed to foster

collaboration, gather valuable insight, and incorporate diverse perspectives into the research process.

Based on the findings from the thematic analysis of the scoping review and the work-shops, a questionnaire was developed to collect quantitative data from participants. A 38- item questionnaire was drafted based on both thematic analyses, international and national guidelines, and practices on DiRR and the consultation of professionals from ODPs in Greece. A national online survey was conducted to identify the reception of the current practices being put into action in the field concerning the involvement of people with disabilities in disaster risk management and preparedness, as well as the perceived policies implemented during the pandemic that were aimed at individuals with disabilities. Quantitative data gathered from the questionnaire were analysed with SPSS 27.

The research took place from July 3, 2023, to September 4, 2023, and it employed a snowball sampling method to identify and enlist participants from the target group of individuals with disabilities. Snowball sampling is a non-probability sampling technique that is well-suited for research involving populations that are challenging to access or not randomly distributed. Given the diverse and unique characteristics of people with disabilities, this method was deemed especially suitable for this study. To complement the snowball sampling approach and ensure a broader outreach, the research team also distributed the survey questionnaire through official websites, forums, or platforms dedicated to disability-related issues. All participants were required to be at least 18 years old, proficient in the Greek language (as the questionnaire was developed and administered in Greek) and have resided in Greece for at least the past two years. In total, the survey questionnaire was made available to 2,023 individuals, resulting in 1,019 responses, of which 1,006 were considered valid for analysis. Data management protocols were strictly followed in compliance with relevant data protection regulations, including the General Data Protection Regulation (GDPR). All collected data were securely stored and handled.

5.1 Scoping Review

Individuals with disabilities face a range of complex inequalities that increase their susceptibility to the impacts of crisis and natural disasters. To gain a comprehensive understanding of their vulnerability and adaptive capacity, it is crucial to assess how people with disabilities have coped during various climate-related events such as droughts, floods,

heatwaves, hurricanes, and wildfires and the pandemic of COVID-19. This examination did not only focus on their experiences but also highlight the existing gaps in information dissemination, inclusion, and support systems. To achieve this understanding, a scoping review was conducted to identify the factors linked to the vulnerability to disaster and crises like the COVID-19 pandemic, as well as the adaptive capabilities of people with disabilities. After the initial identification of potential documents, a systematic screening process was employed to determine their relevance to the research objectives. Only documents meeting the inclusion criteria were included in the scoping review. This review finally included 45 papers that were obtained from a variety of sources, including electronic databases, online search engines like Google, websites of 16 different organizations, and papers from the reference lists of relevant papers. Only 1 research paper related to disaster management and disability in the Greek context were found and were included in the current review.

5.2 Thematic analysis

Complementary thematic analysis provided a structured and systematic approach to uncovering underlying patterns and narratives within the qualitative data. This method allowed for a deeper exploration of the experiences and perspectives of individuals with disabilities. Based on the thematic analysis of the documents used in the scoping review, the following recurring themes were extracted: • Disaster preparedness of PWDs in crisis • Access to aid during COVID-19/Disasters • Access to information regarding COVID-19/Disasters.

5.3 Focus Groups

The focus groups were implemented in June 2023, following the discussion guide developed after the thematic analysis of the scoping review. Before the beginning of the focus groups, participants were informed of the research questions. The first focus group lasted 65 minutes, while the second 87 minutes. Handwritten notes were used throughout focus groups meetings to reflect on key themes from both the researchers' personal experiences and the participants' narratives. Every focus group was assigned with a unique code name, such as Focus Group I, and Focus Group II. All conversations were verbatim transcribed, with participant personal information excluded. A thorough examination of the transcripts—line by line—was done as part of a thematic analysis of the transcripts, which produced a coding scheme. Sub-themes were identified and examined once the transcripts were coded. While

the researchers' field journal achieved credibility and trustworthiness, member checking was used to complete the validity of the study by validating themes that emerged from the data. During the thematic analysis of focus groups, the research team identified the relation among the themes that have emerged among the scoping review and the focus groups.

6 Results

6.1 Thematic Analysis

6.1.1 Theme 1. Disaster preparedness

The high trust of participants in emergency services during natural disasters is recurrent, as highlighted by Howard et al. (2017), who demonstrate the impact of panic and anxiety on individuals' comprehension and actions during crises. Despite experiences revealing the limited accessibility of emergency services by people with disabilities, participants believe these services would provide guidance. Rooney and White's survey (2007) with disaster-affected individuals who experienced catastrophic events highlighted the effectiveness of individual preparedness. But that is not always the case: in a study conducted by Sakashita, Matthews, and Yamamoto (2013), fifty families relying on electrical medical equipment were insufficiently prepared for blackouts and in a study conducted by Gershon et al. (2013) in 253 community-sharing individuals with cognitive and/or physical disabilities, higher emergency preparedness was correlated to personal assistant inclusion. Hogaboom et al. (2013) and McClure et al. (2011) who focused on participants with mobility impairments, revealed a lack of comprehensive evacuation plans for individuals with disabilities.

According to studies, assessments of disabled individuals often emphasize their vulnerabilities, neglecting their inherent resources and abilities in handling emergencies (Stough et al., 2017; Rahimi, 1993; Abbott and Porter, 2013; Alexander et al., 2012; Lord et al., 2016). After Hurricane Katrina, Spence et al. (2007) explored differences in preparedness between evacuees with and without disabilities, finding the latter less likely to make evacuation plans but more prone to stockpiling essentials.

Problems arise when response plans and institutional or community readiness ignore the needs of people with disabilities, especially in response to emergencies and in shelters that are not inclusive (Rooney and White, 2007). Findings show that Disabled People's Organizations (DPOs) effectively oversee disaster preparedness, despite structural obstacles,

supporting community-based disaster risk reduction initiatives (Pertiwi et al., 2019). At the same time, recent studies in Niger and Cameroon highlight that even organizations of persons with disabilities (OPDs) involved in humanitarian actions often lack knowledge about the humanitarian coordination system, posing challenges in accessing funding, resources, and participating in coordination meetings (Takougang 2022; Capo and Sidibe 2023). Lastly, according to Navas et al. (2020), a minority of respondents in their study participated in disaster preparedness workshops, with one third mentioning solely social assets for support in disasters.

6.1.2 Theme 2. Access to aid

Access to Aid During COVID-19

Global standardization of medical procedures, designed to simplify care, inadvertently created a discriminatory environment for people with disabilities, presuming lower survivability based only on frailty scores, strongly associated with comorbidity and central to the definition of disability (Kow and Hasan 2020). For those requiring assistance with personal hygiene, dressing, and mobility, physical distancing posed significant challenges. This is particularly true for blind individuals relying on touch for navigation and those with cognitive impairments struggling to comprehend crucial information without caregiver assistance (Boyle et al., 2020; Goggin and Ellis, 2020; Courtenay and Perrera, 2020).

Cognitive impairments may also lead to delays in diagnosing and treating COVID-19 symptoms (Boyle et al., 2020) and need focused treatment. Disabled individuals, dependent on home-based care were more probable to face challenges due to caregivers refusing home visits during pandemics (Maroto and Pettinicchio, 2020, Pineda and Corburn, 2020). The pandemic exposed discriminatory practices, such as trade restrictions affecting Europe's travel and medication access, and cross-border trade restrictions in China impeding medicine access (Qi and Hu, 2020).

In Australia, people receiving disability support pensions were ineligible for income support during unemployment or furlough, with potentially fatal consequences due to neglect of disabled individuals' unique needs (Qi and Hu, 2020). Disability organizations (DPOs) identified critical issues during the pandemic, such as difficulties with public behavior regulations, detrimental psychological effects of lockdowns, loss of critical support during the shift to

online education for children and students with disabilities, increased risks of infection and mortality from segregation and isolation, a lack of disability-related support services, restricted access to COVID-19 testing and treatment, and a lack of easily accessible information. Additional concerns included economic hardships, disrupted public transportation, and increased risks of domestic violence for women and girls with disabilities (European Human Rights Report, 2021).

Access to aid during Disasters

According to international reports, persons with disabilities confront extraordinary obstacles in disaster response but also in mainstream disaster risk reduction (DRR), facing marginalization that leaves them exposed and vulnerable. They face barriers when it comes to getting timely and easily accessible warning signs, evacuation protocols, and essential services like food, medicine, and medical attention (Twigg et al., 2011, 2018). Their assistive devices (spectacles, wheelchairs etc.) are often lost or damaged (Grech, 2023). This vulnerability is accentuated by the fact that they face greater levels of poverty and inequality in the first place, which means that they are weakly positioned when it comes to the stress induced by crises (Grech, 2023). Remarkably, compared to the general population, their chances of suffering injuries or passing away in a disaster event are two to four times higher (UNESCAP, 2016). More specifically, relief distributions points often exclude people with disabilities: they may be distant or inaccessible, this population may not be able to queue for long periods for relief goods or carry them away. Information about distribution times and locations may not be communicated in ways that can be understood by people with hearing, visual or intellectual impairments. Specific dietary needs may not be met by standard food distributions, and appropriate medication and therapeutic support are often unavailable. Warning and evacuation plans may overlook the needs of people whose visibility, hearing, or mobility is impaired, and emergency shelters and sanitation facilities often fail to take physical accessibility into account. (Alexander et al., 2012; Priestley and Hemingway, 2006; Kett and Twigg, 2007; Twigg et al., 2011; ADCAP, 2015). An unfortunate illustration of this conclusion appeared during the 2021 flood disaster in Germany's Ahr Valley when twelve individuals with disabilities lost their lives due to a deficiency of preventative actions and safeguards, including specialized evacuation plans tailored for floods and an adequate number of caregiving personnel (BündnisEntwicklungHilft / IFHV, 2023).

Pre-disaster discriminatory practices and exclusion continue into the recovery period, with the result that physical, social, and institutional barriers are rebuilt (Zayas et al., 2017). People with disabilities are among the most neglected during evacuation, displacement, and return, with particularly restricted access to social networks and other sources of support. Social stigma and fear may make them reluctant to identify themselves as disabled (Kett et al., 2005; Kett and Twigg, 2007; FMR, 2010). People with impairments related to mental health or cognitive or developmental support needs are often particularly vulnerable to discrimination. There are instances of them being turned away from emergency shelters, and relief agencies are rarely able to provide the specialist assistance they need (Davis et al., 2013; Stough, 2015; Twigg et al., 2011)

6.1.3 Theme 3. Access to Information

Individuals with disabilities face challenges accessing climate and disaster risk information due to ineffective dissemination. Not all information reaches them, and what is accessible often lacks comprehensibility, requiring interpretive language, braille, and simplified formats. Current risk information dissemination, including early warnings, often lacks accessibility for individuals with disabilities through media and communication networks. The media, except for specific events or news broadcasts with sign language interpretation, generally lacks preparedness to disseminate emergency information effectively to this population (Popovski, 2023). Low government officials' capacity in communicating and interacting with persons with disabilities contributes to their vulnerability in disasters (Winarno et al., 2021).

Mladenov and Brennan's (2021) global study highlights challenges for individuals with disabilities during the COVID-19 pandemic. Nearly one third of respondents reported insufficient information, often described as unclear and confusing, with concerns about misinformation. Access to information relied on television, radio, or social media, disadvantaging those without access, especially in remote areas. Additionally, 21% noted a lack of COVID-19 information in accessible formats, emphasizing the need for improved accessibility during public health emergencies. In a smaller survey, 89.5% received coronavirus information, with 81.0% finding it easy to understand, mainly from disability organizations, media, and families (Navas et al., 2020).

In the COVID-19 crisis, rapid dissemination of information was deemed crucial, but this urgency often neglects those with alternative communication needs, violating the UN's

Convention on the Rights of Persons with Disabilities (Courtenay, 2020; Kuper et al., 2020). Many persons with disabilities (PWD) faced challenges accessing COVID-19 health messaging due to insufficient accommodations like subtitles and sign language interpreters (Sabatello et al., 2020; Fernandez-Diaz et al., 2020; Goggin and Ellis, 2020; Yap et al., 2020; Jones et al., 2020). For example, Fernandez-Diaz et al. (2020) found that the WHO website rated poorly on an operability scale, meaning that it was difficult to navigate and find relevant information within the website for people with intellectual disabilities. Visually impaired individuals, as noted by Sabatello et al. (2020) and Fernandez-Diaz et al. (2020), faced challenges accessing information due to errors and inadequate alternative text on the WHO website. Additionally, infographics, commonly used for COVID-19 information, posed difficulties for the same population (Sabatello et al., 2020).

Guidry-Grimes et al. (2020) highlight the need for audio descriptions for press conference inclusivity. Similarly, individuals who are Deaf or Hard of Hearing (DHH) face challenges comprehending government press conferences without subtitles or sign language interpreters (Sabatello et al., 2020; Yap et al., 2020). Unfortunately, Yap et al. (2020) found that only 65% of pandemic-related briefings in low- and middle-income countries and none from international organizations, including the WHO, provided sign language interpreters during the initial pandemic months. Similar findings are reported in other nations, such as China (Sabatello et al., 2020; Goggin and Ellis, 2020).

6.2 Survey Data

6.2.1 Demographic Information

Mobility impairment is reported by 19.3 % of the respondents, while both visual and hearing impairments are each reported by 4.8% of the respondents. Psychiatric disabilities are disclosed by 12.1 %, with hematological disorders and renal/kidney disorders accounting for 7.4 % and 1.8% of the sample population, respectively. Intellectual/developmental disabilities are reported 4.0 %-24.9 % indicate other chronic conditions. Additionally, 20.1% identify as caregivers for individuals with severe disabilities. Most of the respondents falls under the categories 35-44 (23.9%) and 45-54 years old (28.8 %). Concerning assistance needs, 35.6% of the respondents require aid, while 59.4% do not. Geographically, Central Macedonia leads with 26.2%, followed by Attica with 19.9%. 340 respondents (33.8%) hold a high school

diploma, 9.1% (91) have an E.E.E.E.K diploma, 32.6% (327) possess undergraduate degrees, and 14.1% (141) have pursued postgraduate studies.

6.2.2 Information Received by Individuals with Disabilities (and/or Caregivers) During the COVID-19 Pandemic

Regarding their primary sources of information about COVID-19, Mass Media and the Internet was the most selected source, (68.8% and 65.8 % respectively), followed by online government services (i.e. EODDY website) (28.4%), family members (20.4 %) and (DPOs (17.1%). The information received was mainly considered to be clear with 37.8% evaluating as moderately clear and 21.3% as very clear. Regarding their satisfaction with the received information 36.2% of the respondents reported feeling "neutral" about it and 21.1% expressed being "satisfied". Notably, 34.6% of respondents found the information accessible in all available forms, indicating a comprehensive approach to dissemination. Additionally, 23.1% accessed information through accessible websites, 7.4% in sign language, and 6.2% through audio resources. Conversely, a significant proportion (24.9%) did not find COVID- 19 information accessible through any of the mentioned forms. None of the respondents selected the "Braille-Large Print Texts" choice. When asked, "To what extent were the services and support for people with disabilities affected by COVID-19 in Greece during the lockdown period?" 40.8 % reported a severe impact, while others reported being moderately 22.3% affected. When asked to evaluate the access of people with disabilities in Greece to medical care during the lockdown,33.8% expressed a "neutral" perception,31.8% rated their access as "inadequate" and 15.7% reported experiencing a complete absence of access.

Regarding implemented measures during the COVID-19 pandemic, respondents were asked to choose from a list of options to indicate the extent of support provided in various areas. The most selected measures disclosed the government's efforts to minimize the risk of infection (selected by 40.4 %), special measures to support employees with disabilities and chronic illnesses (27.0% of the participants), while 28.4% and 24.3% mentioned the government's actions in closed healthcare facilities and open support facilities respectively. About 20.3% recognized special healthcare measures for individuals with disabilities and chronic illnesses.

Importantly, 10.3% expressed that the government did not take any measures during the pandemic, underscoring the varying perceptions and experiences of people with disabilities in

Greece. Most of the respondents have been vaccinated (86,7%) and have been infected (71,5%) with COVID-19. 88.5% or (889) of the respondents used digital services during the pandemic. Two thirds of the respondents, comprising (60.7%), found these services to be "very effective. 11.5% (or 116 respondents) did not use such services due to difficulty in using them (31%), lack of trust or security concerns (25.9%) and unawareness of their existence (24.1%).

6.2.3 Emergency/Crisis/Disaster Situations and Persons with Disabilities

The data indicate that most of the respondents, 95.0% believe that individuals with disabilities and chronic illnesses, as well as their families, face more barriers compared to those without disabilities in a crisis, emergency, or disaster situation. Only 2.4% disagreed with this perception, while 2.6% did not provide an answer.

When asked to select the obstacles that they encounter most frequently in times of disaster and crisis, 69.2% recognized obstacles and challenges within current policies and administrative processes. Two thirds of the respondents (61.4%) reported physical and ergonomic barriers, emphasizing the importance of designing environments that accommodate diverse needs. Architectural barriers, as mentioned by 52.3% underscore the significance of accessible infrastructure. The prevalence of misconceptions about the abilities of individuals with disabilities was selected by 59.2%, and barriers to information and communication were identified by 47.5 %. Based on their own disabilities or chronic diseases, or those of the individuals they represent, respondents listed several crucial needs that might arise during a crisis or emergency. First, about 70% of the respondents emphasized the important role of continuous access to healthcare and the necessity of maintaining necessary medical treatments related to their disability or chronic diseases. Plus, more than half of the respondents (55.3%) stressed the necessity of accessible housing and lodging options, highlighting the value of inclusive infrastructure in such circumstances. Additionally, 67.4% selected the requirement of easily accessible field clinics and hospitals. Additionally, 39.0% mentioned the accessibility of crucial medical and health supplies such as syringes, glucose meters, and medical oxygen. Finally, 39.6% selected the importance of providing supportive equipment during crises or emergencies, including wheelchairs, hearing aids, white canes, prosthetics, and other accessible devices.

The findings of the survey provided insight into how people would perceive dangers in the

event of future disasters in their local communities. Notably, a sizable number of respondents (65.0%) claimed to feel vulnerable, although 27.8% displayed a moderate awareness of probable disasters striking their respective areas. A considerable percentage of the surveyed population was exposed to emergency or disaster situations in the actual world, as indicated by 38.2% of respondents who indicated that they had in fact experienced one. On the other hand, 61.8% had never personally experienced such circumstances.

From the total of the participants that have experienced a disaster, a small amount, comprising 7.3% reported being fully informed about these facilities. However, a larger portion, representing 19.4% stated that they are aware of such facilities but perceive their number to be insufficient. Alarming, a significant majority, accounting for 73.3% (279 participants), reported not having any knowledge of evacuation facilities. Most of the disaster-affected participants (59.9%) expressed the lowest level of satisfaction with the quality of evacuation and shelter facilities in their region. A smaller number (10.6%) reported official registration with relevant authorities, ensuring subsequent assistance during times of crisis. Interestingly, another cohort of 37 participants (10.1%) indicated their registration for aid but reported not receiving any, suggesting potential inefficiencies in support allocation. Remarkably, 79.3% of participants that have experienced times of crisis (294), reported that they were not registered in any capacity by relevant authorities. (Figure 1)

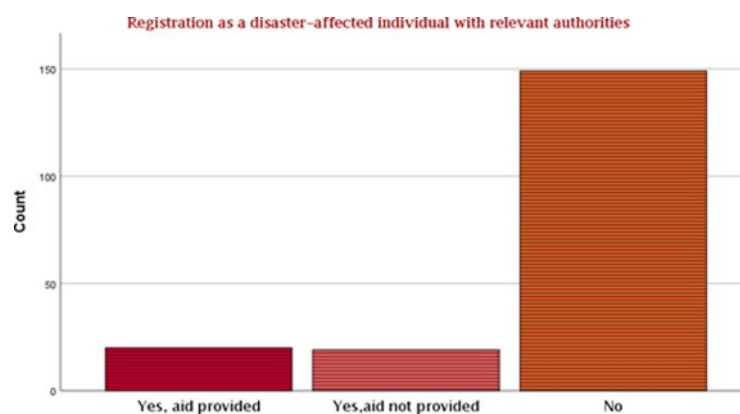


Figure 1: Registration status and provision of aid (Archive)

In evaluating the response and support from authorities during and after disasters, 432 respondents (43.2%) found the assistance to be "Highly Insufficient," while 188 respondents (18.8%) considered it "Insufficient." In a multiple-choice question of dissemination channels, television was selected by 67.6% as a source of disaster-related information, and social media platforms such as Facebook and Twitter were chosen by 61.0%. Accessing emergency

information websites and mobile alert/notification systems (i.e., 112) were also relatively popular options, with 38.8% and 52.1% using them, respectively. Radio and newspapers/magazines were selected significantly less frequently.

Approximately half (49.5%) of the respondents indicated that they had visited websites offering information on emergencies/crises/disasters (i.e. General Secretariat for Civil Protection, Earthquake planning and Protection organization (E.P.P.O.))The ratings for government information sources reveal a mixed sentiment among respondents: 45.7% of participants rated the information as average, 21.3% considered it good and 16.3% rated it as adequate. A significant portion 27.8% displayed moderate awareness potential natural disasters in their region (with 21.3% having no awareness whatsoever). In contrast, 9.3% stated that they were aware of such disasters. Between these two extremes, respondents fell into categories indicating slight, moderate, and very high levels of awareness at 22.7%, 27.8% and 18.9% respectively.

One important finding consists of the familiarization of the population studied with the National Action Plan for the rights of persons with disabilities: 59.4 % reported not being familiar with this policy, while 31.8% of participants were aware of its implementation. Respondents were asked to rate the usefulness of the new measures entailed in the Greek National Plan for the Rights of Persons with Disabilities. The results reveal widespread acceptance.

Automatic Location Detection for Emergency Calls secured substantial support, with 46.5% deeming it "extremely useful," alongside 18.3% rating it "moderately useful," totaling 650 respondents recognizing its efficacy. Awareness campaigns in collaboration with civil protection agencies found favor among 32.2% for being "extremely useful" and an additional 21.7% for being "very useful," accumulating to 540 respondents acknowledging their importance. Cooperation with municipalities for building contact lists of persons with disabilities received commendation from 39.4% as "extremely useful" and an additional 17.1% as "very useful," totaling 567 participants expressing its utility. Evacuation Guidelines were rated by 41.9% and 16,1% as extremely useful and very useful respectively, contributing to a total of 58.0% recognizing their value. Improving accessibility of public buildings and installing accessible exit signs garnered strong support, with 45.5% considering them "extremely useful," and 14.3% finding them "very useful," accumulating to 601 participants endorsing this

measure. Creating Digital City Maps to Support Disaster Planning gained recognition from 39.6%, with an additional 20.1% considering it "moderately useful," resulting in a total of 59.7% or 600 participants recognizing its significance. Mapping Potentially Accessible Healthcare Facilities and Food Distribution Points saw widespread approval, with 47.1% deeming it "extremely useful," and an additional 15.3% finding it "very useful," accumulating to 62.4% or 626 respondents valuing this mapping. Secure Information Transmission for People with Disabilities and Communication Challenges received strong support, as 45.7% considered it "extremely useful," and an added 17.5% found it "very useful," totaling 63.2% or 635 individuals recognizing its pivotal role. Training Seminars, Educational Materials, and Sign Language Videos garnered substantial endorsement, with 38.6% finding them "extremely useful," and an additional 19.3% considering them "very useful," resulting in a combined 57.9% or 583 respondents acknowledging their significant value. Lastly, Ensuring Housing Solutions for Persons with Disabilities Affected by Natural Disasters gained widespread approval, with 50.1% deeming it "extremely useful," and an additional 13.3% considering it "very useful." This amounted to 63.4% or 637 respondents recognizing the crucial role of this measure in addressing the specific needs of individuals with disabilities during natural disasters.

Table 1: Steps Taken by Participants in Disaster Preparedness (% and Count)

Steps taken	Selected (%)	Not selected (%)
Registered in Municipality’s Disability Registry	7.0 (70)	93.0 (936)
Jointly Developed Personal Evacuation Plan	4.0 (40)	96.0 (966)
Informed about Responsible Person for Safe Evacuation	4.0 (40)	96.0 (966)
Prepared Evacuation Routes as Part of Disaster Plan	23.1 (224)	76.9 (774)
Created Personal Evacuation Plan	26.2 (264)	73.8 (742)
Stocked Food and Supplies for Emergency Evacuation	20.3 (204)	79.7 (802)
Gathered Important Documents for Emergencies	25.2 (254)	74.8 (752)
Included Alternative Communication Methods	9.5 (96)	90.5 (910)
Incorporated Clothing, Cash, and Other Needs	13.1 (132)	86.9 (874)
Will Relocate to a Different Location in Case of Disaster	31.4 (316)	68.6 (690)
None of the Above	37.8 (380)	62.2 (626)

Participants were asked about the proactive measures they may have or have not taken in case of crisis and disasters. Among the available measures for selection, a minority of respondents have actively undertaken them, with specific percentages indicating their engagement. Only 7.0% registered in disability registries, 4.0% developed evacuation

plans, 13.1% incorporated clothing, and cash in their plan, 31.4% expressed an intent to relocate, and 37.8% reported not taking any preparedness measures among the 1006 respondents (Table 2). Among the 1006 participants, 310 found the 112-emergency service extremely useful (30.8%), 276 rated it as very useful (27.4%) and 272 considered it moderately useful (27%).

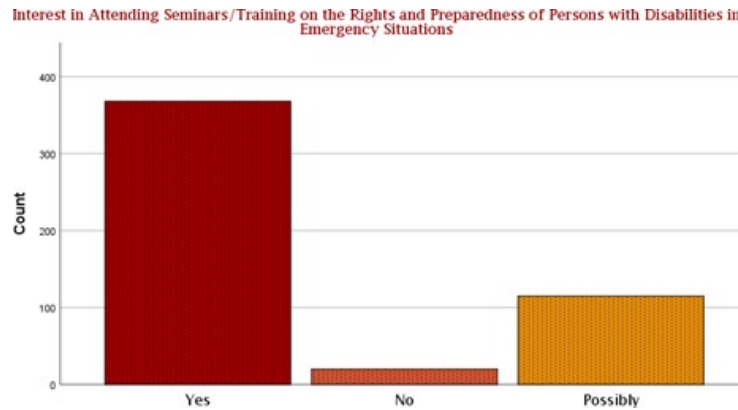


Figure 2: Interest in disaster preparedness training (Archive)

Training and Information of Persons with disabilities on Emergency/Disaster Situations:

54.5% noted a lack of resources, such as training seminars on the rights and preparedness of persons with disabilities in emergency situations, in their communities, highlighting a potential gap in essential information and training provision. In contrast, 11.5% reported occasional provision, and only 2.6% mentioned regular offerings of such seminars. When asked about government-provided free training/seminars on the rights/needs/preparedness of persons with disabilities in emergency situations, 5.4% were aware of their availability, while 26.6% knew that such training is not available. Concerning the implementation of civil protection programs for the rights of persons with disabilities, chronic illnesses, and their families, 8.6% were aware of their existence, 44.4% knew they were not implemented, and 47.0% were unaware of the implementation of such programs. In response to the question of interest in attending seminars/training on the rights and preparedness of persons with disabilities in emergency situations, 73.2% of the participants expressed interest (Figure 2).

7 Discussion

The research findings are consistent with international evidence, highlighting that individuals with disabilities have indeed been heavily affected by both the COVID-19 pandemic and disasters. A significant portion of participants believe that people with disabilities and chronic illnesses, as well as their families and caregivers, face more difficulties when it comes to disaster management (Cortis and Van Toorn, 2020, Twig, Kett, and Lovell, 2018, Know and Hasan, 2020,). Given that their special needs, such as those pertaining to vision, hearing, or mobility impairments, are frequently disregarded in warning and evacuation plans and emergency facilities lack the necessary physical accessibility,(Alexander et al.,2012;Hemingway and Priestley,2006;Kett and Twigg,2007;Twigg et al.,2011; ADCAP,2015;Boyle et al.,2020; Goggin and Ellis,2020;Courtenay and Perrera,2020), 65.0% of all participants reported feeling vulnerable against potential disasters in their respective communities.

The research indicates a significant impact of the COVID-19 pandemic on services and medical care for people with disabilities in Greece. About 40.8% of respondents report a severe disruption of services and support, highlighting challenges in accessing medical care during the lockdown, with 47.5% perceiving it as non-existent or inadequate (Cortis and Van Toorn, 2020; UN, 2020; Brennan et al., 2020; Courtenay and Perrera, 2020; Goggin and Ellis, 2020). Approximately 40% of participants recognize the government's effort to minimize infection as the most prominent measure. However, there's room for improvement in other areas, such as measures for parents or guardians of individuals with disabilities, initiatives for students in special schools, and various other measures, which received comparatively lower acknowledgment. This suggests an opportunity for enhanced communication and effectiveness in implementing these measures.

Aligning with the global trend of digital services provision, most respondents (88.5%) used digital services that were created during the COVID-19 pandemic to facilitate access to public services; among those not using them lack trust and difficulty in using them were the most prominent reasons (Kallimani, 2020). The high utilization rate of digital services introduced during the COVID-19 pandemic among respondents with disabilities in the Greek context does indicate a high level of acceptance and adaptability; people with disabilities were willing to embrace and utilize new technological solutions to facilitate their access to public services,

especially during challenging times like the pandemic.

In evaluating the quality and accessibility of information individuals with disabilities received during the pandemic, the study's results align with the findings of other surveys on some levels (one third of the participants mentioned accessibility in all available forms)(Mladenov and Brennan, 2021; European Human Rights Report, 2021; Sabatello et al., 2020; Fernandez-Diaz et al., 2020; Goggin and Ellis, 2020; Yap et al., 2020; Jones et al., 2020) but do not display extreme results . Most respondents received information about COVID-19 and disasters primarily through Mass Media and the Internet, with a respectable amount (28.4%) utilizing the official websites implemented by the Greek government (i.e., EODY website) during the pandemic. Regarding the clarity of information provided during the pandemic, some respondents found it lacking, while the majority viewed it as moderately clear, and a significant segment considered it very clear (Navas et al., 2020). In terms of overall satisfaction with the information received, more than half of the participants expressed neutral to high levels of satisfaction.

From the total of the participants, 38.2% reported that they have experienced an emergency. From this affected population, the results of the survey indicate that there is space for improvement in alerting citizens about the availability of evacuation facilities for people with disabilities during crisis or disasters. The National Disability Action Plan (2020), as a policy instrument that foresees disability inclusivity in civil protection in emergency situations, received widespread acceptance by the participants, with the majority evaluating the provision measures positively. However, nearly two thirds of the survey respondents were unaware of its provisions about people with disabilities, echoing a phenomenon recognized in previous reports about the confusing and unstable manner of information dissemination (Brennan et al., 2020; UN, 2020). Many the disaster-affected participants expressed that they were not registered in any capacity by authorities, and only some of the total participants have completed their registration in their respective municipalities as a proactive step of disaster preparedness. This result echoes international literature regarding inadequate or missing information about the disabled population during a crisis (Kett and Twigg, 2007).

The survey results also indicate that only a small number of respondents has chosen to undertake various disaster preparedness measures as it has been documented in other studies (Howard et al., 2017; Sakashita, Matthews, and Yamamoto, 2013; Gershon et al., 2013)

However, there was a clear expression of interest among respondents in attending seminars and training programs focused on disability rights and emergency preparedness. The early warning system implemented by the Greek Government “112”, was widely accepted as useful. This demonstrates a willingness to enhance their knowledge and readiness in the face of disasters as studies have shown that disability status itself is not significantly linked to disaster preparedness. and people with disabilities, who regularly navigate physical barriers and overcome obstacles in their daily lives, may be better prepared psychologically to handle, crises compared to their non-disabled counterparts (Stough et al., 2017; Rahimi, 1993; Abbott and Porter, 2013; Alexander et al., 2012; Lord et al., 2016). However, the data also revealed a lack of awareness regarding the government’s provision of free training and seminars on these topics, suggesting the need for increased efforts to inform the community about available resources

8 Policy Recommendations

The findings of this research drew the challenges faced by people with disabilities in the wake of the COVID-19 outbreak during a period of unprecedented natural disasters. Besides the perceptions and experiences of the responders, the data highlighted the need to develop more inclusive policies at national level. While there are numerous of positive steps toward inclusion of people with disabilities, still they are fragmented. Therefore, the need for holistic horizontal policies for multiple vulnerabilities during disasters is required, co-created and co-designed with people with disabilities or chronic conditions along with caregivers, families, and personalized aids. Considering the findings and the academic discourse several policy recommendations could be outlined based on three main pillars: the incorporation of disability mainstreaming approach in the risk prevention and disaster reduction framework, the improvement of accessibility and usability of services, enhancement of visibility of people with disabilities.

The inclusion of disability mainstreaming approach in the risk prevention and disaster reduction framework at policy level requires a participatory approach, putting at the epicenter suggestions from the disability community to guarantee that their rights will be respected on an equal basis with those of people without disabilities. In parallel, the disability mainstreaming approach will be encouraged through the development of disability committees aiming to inspire close cooperation with organizations that represent individuals

with disabilities and chronic illnesses, with emphasis on Disaster Risk Reduction (DRR). This approach will ensure that people with disabilities, living with chronic illnesses, and their families will be included in the creation, execution, oversight, and assessment of policies, strategies, actions, and programs. In the same direction, the incorporation of policy frameworks that protect the rights of individuals with chronic illnesses and disabilities, considering the unique characteristics as a significant contributor to vulnerability, particularly before, during, and after disasters would be beneficial. Upon this ground, a thorough cross-sectoral policy framework should be adjusted, that incorporates risk reduction and prevention strategies into ongoing disability reforms for people with chronic illnesses, disabilities, and their families.

The removing of barriers that restrict, hinder, or prohibit the autonomy, independent living, and participation of individuals with disabilities in economic, social, political, and cultural life, epitomizes a fundamental characteristic of rights-based approach. Hence, the improvement of accessibility and usability of services represents one of the keys to equal participation of people with disabilities in risk prevention and disaster reduction. More specifically, early warning systems should include multiple inclusive features to be more accessible, comprehensive, and actionable for individuals with disabilities. This will be achieved through the establishment of minimum standards and checklists for all disaster-related communications, making them accessible in various formats, including sign language, easy read formats, and pictorial versions. Consequently, the design of early warning system should be co-developed along with people with disabilities. Under the prism of communication, for people with disabilities accessibility and usability is also inextricably linked with their provision or access to information and awareness raising. In parallel with the communication and early warning systems, the improvement of accessibility should be also encouraged at infrastructures framework such as field hospitals, shelter facilities with accessible sanitation facilities, inclusive refuge spaces, appropriate signage for all categories of disabilities, food and nonfood item distribution points, healthcare services, rehabilitation, buildings, adequate space, equipment, and cost-free accessible transportation. Despite the existing legal framework in Greece that governs accessibility in various domains, there is a need for a comprehensive legal framework that will integrate accessibility standards and establish consultations with representative organizations of persons with disabilities, chronic

illnesses, and their families at all levels. Adapt laws, by-laws, operational procedures, should be align with global frameworks and the requirements of the UN Convention on the Rights of Persons with Disabilities and standards, as well as be wide accessibility to all individuals through the provision of assistive formats and versions comprehensible to various disability groups. Considering that the needs and challenges of each person vary the plans for disaster management should be specific, individualized, and tailored to the unique needs of each citizen with disabilities or chronic conditions along with caregivers, families, and personalized aids. Upon this ground it is suggested an all-hazards strategy for enabling emergency preparedness to be the promotion of Person-Centred Emergency Preparedness. Based on that people can create a personal emergency plan and self-assess their readiness, capabilities, and support requirements. In addition to all the above mentioned and the current digital registration program for people with disabilities in Greece, the creation of a central registry for all people with disabilities or chronic diseases would be beneficial. The central registry would be able to communicate with all relevant disability certification authorities and register everyone with disabilities, chronic illnesses, and their families at the local government level. This would safeguard the individuals in emergency situations and provide reliable data and conclusions. The third pillar of policy recommendations relies on the enhancement of visibility of people with disabilities. When it comes to designing policies, making decisions, and implementing programs and activities at national, regional, and local levels, organizations that represent individuals with disabilities, individuals with chronic conditions, and their families need to be at the forefront. The appropriate education and training for all actors, services, organizations, and individuals involved in the creation of policies, as well as humanitarian aid professionals, from the disabled community would support the achievement of an inclusive civil protection. To guarantee that no one is left behind, operational personnel and staff members must get trained in collaboration with organizations that represent individuals with disabilities, chronic illnesses, and their families. In parallel, it is significant first responders and people with disabilities and/or chronic illnesses with disabilities to be involved in the already existing educational initiatives, as well as interprofessional simulation exercises on disaster planning, management, and recovery. Finally, special attention should be given at the deinstitutionalization of individuals with disabilities, since people with disabilities who live in institutions are often much more vulnerable within them during disasters.

9 Conclusions

The study emphasizes the significant effects that Greece's disasters and the COVID-19 pandemic had on people with disabilities. Respondents conveyed a consensus regarding the increased difficulties encountered by people with disabilities and chronic illnesses, highlighting their susceptibility because of needs not being taken into consideration during disaster management scenarios. The COVID-19 pandemic caused serious interruptions to medical services and care, with a significant portion of the population reporting insufficient access during the lockdown.

Notwithstanding difficulties, there are advantages to consider. The high adoption rate of digital services introduced for public service access during the pandemic demonstrates the adaptability of people with disabilities. Additionally, a desire to increase knowledge and preparedness for disasters is demonstrated by the expressed interest in attending seminars and training sessions. However, the study points out areas which require improvement. Although government efforts to reduce infection along with other measures during the pandemic were acknowledged, other initiatives were given less attention. The National Disability Action Plan and government-implemented training programs are not well known, which suggests the need for improved engagement and communication. However, the governmental provisional measures for the rights of people with disabilities in times of crisis met widespread acceptance by the group.

Bridging the awareness gap is essential to moving forward: effective collaboration between the government, disability organizations, and stakeholders is essential for improving disaster preparedness for individuals with disabilities. Policy recommendations stress the importance of including disability perspectives in decision-making, promoting education programs for inclusive civil protection, and raising awareness among emergency personnel to better comprehend and address the distinct needs of people with disabilities. By actively involving and addressing the concerns of this significant demographic, these recommendations aim to create a more inclusive and resilient disaster management framework.

Institutional Review Board Statement

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Ethics Committee of National and Kapodistrian University of Athen (Ref N./688/24-10-2022).

Informed Consent Statement

Every participant in the study gave their informed consent. Each participant electronically signed an informed consent form when they applied to be included in the course.

Data Availability Statement

Upon reasonable request, the corresponding author will provide the data supporting the study's conclusions.

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